

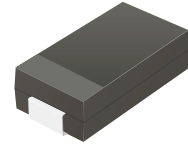
## ASMCJ5.0(C)A-HF Thru. ASMCJ440(C)A-HF

Working Peak Reverse Voltage: 5.0 to 440 Volts

Power Dissipation: 1500 Watts

RoHS Device

Halogen Free



### Features

- 1500W peak pulse power capability with a 10/1000µs waveform, repetitive rate (duty cycle):0.01%
- For surface mounted applications to optimize board space
- Low incremental surge impedance
- Excellent clamping capability
- Very fast response time
- Uni and Bidirectional unit
- Plastic package has underwriters laboratory flammability 94V-0
- Meet Halogen free and RoHS compliant
- Comply with AEC-Q101



### Mechanical data

- Case: SMC/DO-214AB, molded plastic.
- Terminals: solderable per MIL-STD-750, method 2026.
- Polarity: Color band denotes positive end (cathode) except bi-directional models.

### Circuit Diagram



### Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.  
Single phase, half wave, 60Hz resistive or inductive load. For capacitive load, derate current by 20%.

| Characteristics   | Symbol                            | Value          | Units |
|---|-----------------------------------|----------------|-------|
| Peak power dissipation on a 10/1000µs waveform (Note 1)                               | P <sub>PP</sub>                   | 1500           | W     |
| Peak pulse current on a 10/1000µs waveform (Note 1)                                   | I <sub>PP</sub>                   | See Next Table | A     |
| Steady state power dissipation at T <sub>L</sub> =50°C                                | P <sub>D</sub>                    | 6.5            | W     |
| Peak forward surge current, 8.3ms single half sine-wave uni-directional only (Note 2) | I <sub>FSM</sub>                  | 200            | A     |
| Maximum instantaneous forward voltage at 100A for uni-directional only                | V <sub>F</sub>                    | 3.5/5.0        | V     |
| Operation junction and storage temperature range                                      | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150    | °C    |

- Notes: 1. Non-repetitive current pulse, and derated above T<sub>A</sub>=25°C  
 2. Mounted on 0.31 x 0.31" (8.0 x 8.0 mm) copper pads to each terminal  
 3. V<sub>F</sub><3.5V for devices of V<sub>BR</sub><200V and V<sub>F</sub><5.0V for devices of V<sub>BR</sub>>201V

# SMD Transient Voltage Suppressor

## Electrical Characteristics (at TA=25°C, unless otherwise specified)

| Part No.        | Breakdown voltage<br>VBR @ IT |          |         | Maximum Reverse Leakage<br>@VRWM<br>IR (µA) | Working Peak Reverse Voltage<br>VRWM (V) | Maximum Reverse Surge Current<br>IPP (A) | Maximum Clamping Voltage<br>@IPP<br>Vc (V) | Marking Code |     |
|-----------------|-------------------------------|----------|---------|---|--|--|--|--------------|-----|
|                 | Min. (V)                      | Max. (V) | IT (mA) |   |  |  |  | UNI          | BI  |
| ASMCJ5.0(C)A-HF | 6.40                          | 7.25     | 10      | 1000  | 5.0                                      | 163.0                                    | 9.2  | GDE          | BDE |
| ASMCJ6.0(C)A-HF | 6.67                          | 7.37     | 10      | 1000  | 6.0                                      | 145.6                                    | 10.3                                       | GDG          | BDG |
| ASMCJ6.5(C)A-HF | 7.22                          | 7.98     | 10      | 500   | 6.5                                      | 133.9                                    | 11.2                                       | GDK          | BDK |
| ASMCJ7.0(C)A-HF | 7.78                          | 8.60     | 10      | 200   | 7.0                                      | 125.0                                    | 12.0                                       | GDM          | BDM |
| ASMCJ7.5(C)A-HF | 8.33                          | 9.21     | 1       | 100   | 7.5                                      | 116.3                                    | 12.9                                       | GDP          | BDP |
| ASMCJ8.0(C)A-HF | 8.89                          | 9.83     | 1       | 50  | 8.0                                      | 110.3                                    | 13.6                                       | GDR          | BDR |
| ASMCJ8.5(C)A-HF | 9.44                          | 10.40    | 1       | 20  | 8.5                                      | 104.2                                    | 14.4                                       | GDT          | BDT |
| ASMCJ9.0(C)A-HF | 10.00                         | 11.10    | 1       | 10  | 9.0                                      | 97.4                                     | 15.4                                       | GDV          | BDV |
| ASMCJ10(C)A-HF  | 11.10                         | 12.30    | 1       | 5   | 10.0                                     | 88.2                                     | 17.0                                       | GDX          | BDX |
| ASMCJ11(C)A-HF  | 12.20                         | 13.50    | 1       | 5   | 11.0                                     | 82.4                                     | 18.2                                       | GDZ          | BDZ |
| ASMCJ12(C)A-HF  | 13.30                         | 14.70    | 1       | 5   | 12.0                                     | 75.4                                     | 19.9                                       | GEE          | BEE |
| ASMCJ13(C)A-HF  | 14.40                         | 15.90    | 1       | 5   | 13.0                                     | 69.8                                     | 21.5                                       | GEG          | BEG |
| ASMCJ14(C)A-HF  | 15.60                         | 17.20    | 1       | 5   | 14.0                                     | 64.7                                     | 23.2                                       | GEK          | BEK |
| ASMCJ15(C)A-HF  | 16.70                         | 18.50    | 1       | 5   | 15.0                                     | 61.5                                     | 24.4                                       | GEM          | BEM |
| ASMCJ16(C)A-HF  | 17.80                         | 19.70    | 1       | 5   | 16.0                                     | 57.7                                     | 26.0                                       | GEP          | BEP |
| ASMCJ17(C)A-HF  | 18.90                         | 20.90    | 1       | 5   | 17.0                                     | 54.3                                     | 27.6                                       | GER          | BER |
| ASMCJ18(C)A-HF  | 20.00                         | 22.10    | 1       | 5   | 18.0                                     | 51.4                                     | 29.2                                       | GET          | BET |
| ASMCJ20(C)A-HF  | 22.20                         | 24.50    | 1       | 5   | 20.0                                     | 46.3                                     | 32.4                                       | GEV          | BEV |
| ASMCJ22(C)A-HF  | 24.40                         | 26.90    | 1       | 5   | 22.0                                     | 42.3                                     | 35.5                                       | GEX          | BEX |
| ASMCJ24(C)A-HF  | 26.70                         | 29.50    | 1       | 5   | 24.0                                     | 38.6                                     | 38.9                                       | GEZ          | BEZ |
| ASMCJ26(C)A-HF  | 28.90                         | 31.90    | 1       | 5   | 26.0                                     | 35.6                                     | 42.1                                       | GFE          | BFE |
| ASMCJ28(C)A-HF  | 31.10                         | 34.40    | 1       | 5   | 28.0                                     | 33.0                                     | 45.4                                       | GFG          | BFG |
| ASMCJ30(C)A-HF  | 33.30                         | 36.80    | 1       | 5   | 30.0                                     | 31.1                                     | 48.4                                       | GFK          | BFK |
| ASMCJ33(C)A-HF  | 36.70                         | 40.60    | 1       | 5   | 33.0                                     | 28.1                                     | 53.3                                       | GFM          | BFM |
| ASMCJ36(C)A-HF  | 40.00                         | 44.20    | 1       | 5   | 36.0                                     | 25.8                                     | 58.1                                       | GFP          | BFP |
| ASMCJ40(C)A-HF  | 44.40                         | 49.10    | 1       | 5   | 40.0                                     | 23.3                                     | 64.5                                       | GFR          | BFR |
| ASMCJ43(C)A-HF  | 47.80                         | 52.80    | 1       | 5   | 43.0                                     | 21.6                                     | 69.4                                       | GFT          | BFT |
| ASMCJ45(C)A-HF  | 50.00                         | 55.30    | 1       | 5   | 45.0                                     | 20.6                                     | 72.7                                       | GFV          | BFV |
| ASMCJ48(C)A-HF  | 53.30                         | 58.90    | 1       | 5   | 48.0                                     | 19.4                                     | 77.4                                       | GFX          | BFX |
| ASMCJ51(C)A-HF  | 56.70                         | 62.70    | 1       | 5   | 51.0                                     | 18.2                                     | 82.4                                       | GFZ          | BFZ |
| ASMCJ54(C)A-HF  | 60.00                         | 66.30    | 1       | 5   | 54.0                                     | 17.2                                     | 87.1                                       | GGE          | BGE |
| ASMCJ58(C)A-HF  | 64.40                         | 71.20    | 1       | 5   | 58.0                                     | 16.0                                     | 93.6                                       | GGG          | BG  |
| ASMCJ60(C)A-HF  | 66.70                         | 73.70    | 1       | 5   | 60.0                                     | 15.5                                     | 96.8                                       | GGK          | BGK |
| ASMCJ64(C)A-HF  | 71.10                         | 78.60    | 1       | 5   | 64.0                                     | 14.5                                     | 103.0                                      | GGM          | BG  |
| ASMCJ70(C)A-HF  | 77.80                         | 86.00    | 1       | 5   | 70.0                                     | 13.3                                     | 113.0                                      | GGP          | BGP |
| ASMCJ75(C)A-HF  | 83.30                         | 92.10    | 1       | 5   | 75.0                                     | 12.4                                     | 121.0                                      | GGR          | BGR |
| ASMCJ78(C)A-HF  | 86.70                         | 95.80    | 1       | 5   | 78.0                                     | 11.9                                     | 126.0                                      | GGT          | BGT |
| ASMCJ85(C)A-HF  | 94.40                         | 104.00   | 1       | 5   | 85.0                                     | 10.9                                     | 137.0                                      | GGV          | BGV |
| ASMCJ90(C)A-HF  | 100.00                        | 111.00   | 1       | 5   | 90.0                                     | 10.3                                     | 146.0                                      | GGX          | BGX |
| ASMCJ100(C)A-HF | 111.00                        | 123.00   | 1       | 5   | 100.0                                    | 9.3                                      | 162.0                                      | GGZ          | BGZ |

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## Electrical Characteristics (at TA=25°C, unless otherwise specified)

| Part No.        | Breakdown voltage<br>VBR @ IT |             |            | Maximum<br>Reverse<br>Leakage<br>@VRWM<br>IR (µA) | Working<br>Peak<br>Reverse<br>Voltage<br>VRWM (V) | Maximum<br>Reverse<br>Surge<br>Current<br>IPP (A) | Maximum<br>Clamping<br>Voltage<br>@IPP<br>Vc (V) | Marking<br>Code |     |
|-----------------|-------------------------------|-------------|------------|---|---|---|--|-----------------|-----|
|                 | Min.<br>(V)                   | Max.<br>(V) | IT<br>(mA) |   |   |   |  | UNI             | BI  |
| ASMCJ110(C)A-HF | 122.0                         | 135.0       | 1          | 5   | 110.0   | 8.5   | 177.0  | GHE             | BHE |
| ASMCJ120(C)A-HF | 133.0                         | 147.0       | 1          | 5   | 120.0   | 7.8   | 193.0  | GHG             | BHG |
| ASMCJ130(C)A-HF | 144.0                         | 159.0       | 1          | 5   | 130.0   | 7.2   | 209.0  | GHK             | BHK |
| ASMCJ150(C)A-HF | 167.0                         | 185.0       | 1          | 5   | 150.0   | 6.2   | 243.0  | GHM             | BH  |
| ASMCJ160(C)A-HF | 178.0                         | 197.0       | 1          | 5   | 160.0   | 5.8   | 259.0  | GHP             | BHP |
| ASMCJ170(C)A-HF | 189.0                         | 209.0       | 1          | 5   | 170.0   | 5.4   | 275.0  | GHR             | BHR |
| ASMCJ180(C)A-HF | 200.0                         | 220.0       | 1          | 5   | 180.0   | 5.1   | 291.6  | GHT             | BHT |
| ASMCJ190(C)A-HF | 211.0                         | 232.0       | 1          | 5   | 190.0   | 4.8   | 307.8  | GHU             | BHU |
| ASMCJ200(C)A-HF | 224.0                         | 247.0       | 1          | 5   | 200.0   | 4.6   | 324.0  | GHV             | BHV |
| ASMCJ210(C)A-HF | 237.0                         | 263.0       | 1          | 5   | 210.0   | 4.4   | 340.0  | GHW             | BH  |
| ASMCJ220(C)A-HF | 246.0                         | 272.0       | 1          | 5   | 220.0   | 4.2   | 356.0  | GHX             | BHX |
| ASMCJ250(C)A-HF | 279.0                         | 309.0       | 1          | 5   | 250.0   | 3.7   | 405.0  | GHZ             | BHZ |
| ASMCJ300(C)A-HF | 335.0                         | 371.0       | 1          | 5   | 300.0   | 3.1   | 486.0  | GJE             | BJE |
| ASMCJ350(C)A-HF | 391.0                         | 432.0       | 1          | 5   | 350.0   | 2.6   | 567.0  | GJG             | BJG |
| ASMCJ400(C)A-HF | 447.0                         | 494.0       | 1          | 5   | 400.0   | 2.3   | 648.0  | GJK             | BJK |
| ASMCJ440(C)A-HF | 492.0                         | 543.0       | 1          | 5   | 440.0   | 2.1   | 713.0  | GJM             | BJM |

Notes: 1. For Bi-directional type having VRWM of 10V and less, the IR Limit is double.  
 2. For Bi-directional devices, use suffix CA.

## Rating and Characteristic Curves (ASMCJ5.0(C)A-HF Thru. ASMCJ440(C)A-HF)

Fig.1 - Pulse Derating Curve

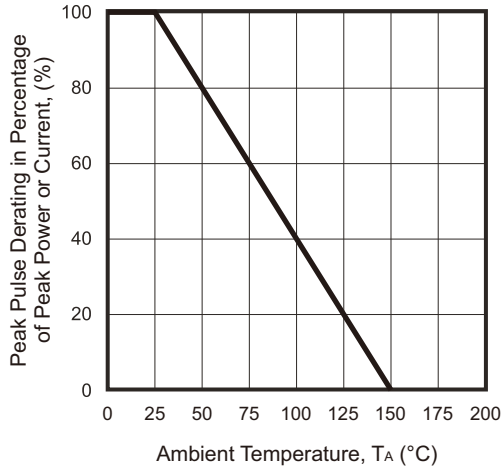


Fig.2 - Maximum Non-Repetitive Surge Current



Fig.3 - Steady State Power Derating Curve



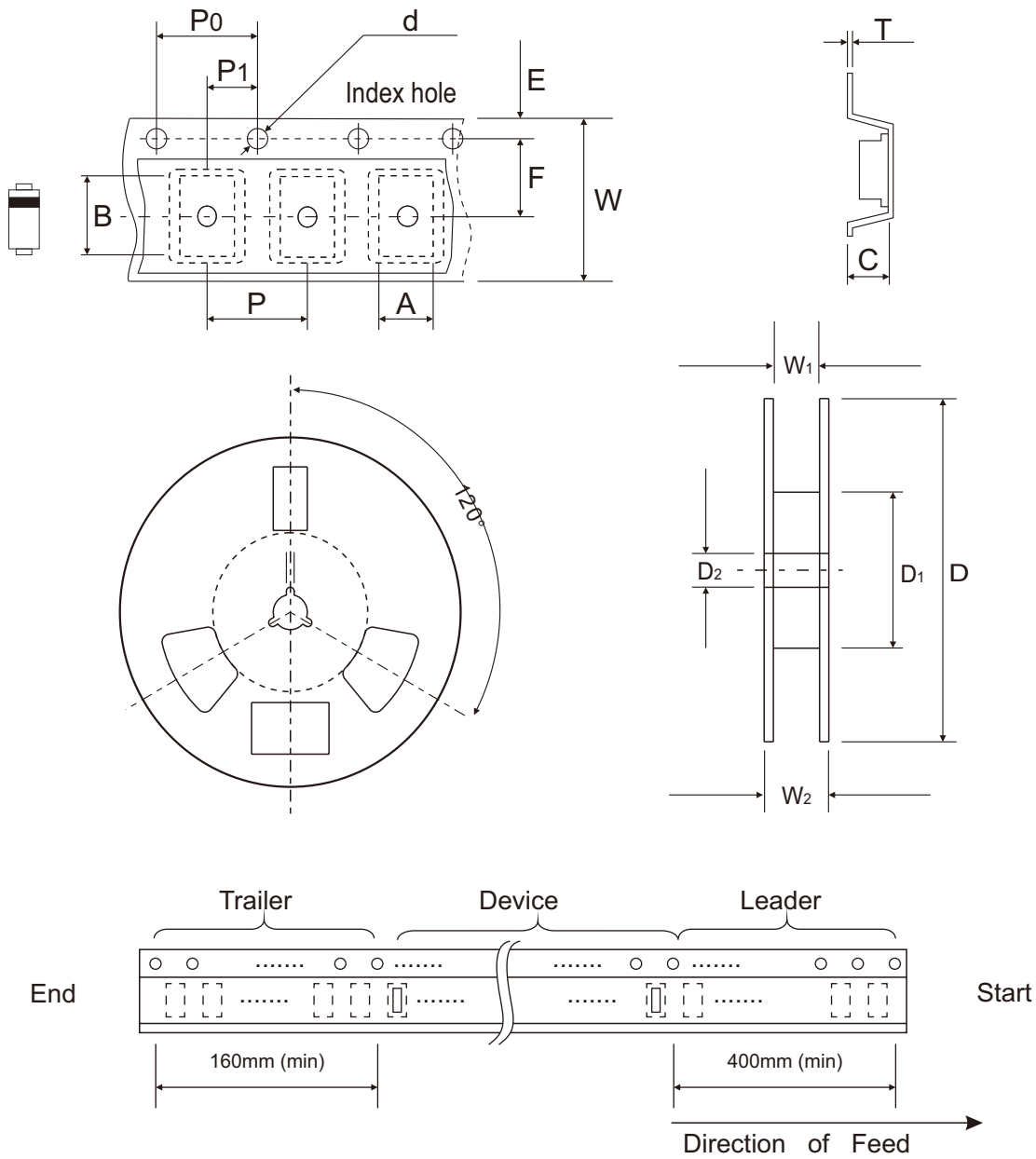
Fig.4 - Peak Pulse Power Rating Curve



Fig.5 - Pulse Waveform



## Reel Taping Specification



| DO-214AB<br>(SMC) | SYMBOL | A          | B | C | d             | T            | D      | D <sub>1</sub> | D <sub>2</sub>                            |
|-------------------|--------|------------|---|---|---------------|--------------|--------|----------------|---|
|                   | (mm)   | See Note 1 |   |   | 1.55 ± 0.05   | 0.40 (Max.)  | 330.00 | 50.00 (Min.)   | 13.00 <sup>+0.50</sup> <sub>-0.20</sub>   |
|                   | (inch) | See Note 1 |   |   | 0.061 ± 0.002 | 0.016 (Max.) | 13.000 | 1.969 (Min.)   | 0.512 <sup>+0.020</sup> <sub>-0.008</sub> |

| DO-214AB<br>(SMC) | SYMBOL | E             | F             | P             | P <sub>0</sub> | P <sub>1</sub> | W             | W <sub>1</sub>                            | W <sub>2</sub> |
|-------------------|--------|---------------|---------------|---------------|----------------|----------------|---------------|---|----------------|
|                   | (mm)   | 1.75 ± 0.10   | 7.50 ± 0.05   | 8.00 ± 0.10   | 4.00 ± 0.10    | 2.00 ± 0.05    | 16.00 ± 0.10  | 16.40 <sup>+2.00</sup> <sub>-0.00</sub>   | 22.40 (Max.)   |
|                   | (inch) | 0.069 ± 0.004 | 0.295 ± 0.002 | 0.315 ± 0.004 | 0.157 ± 0.004  | 0.079 ± 0.002  | 0.630 ± 0.004 | 0.646 <sup>+0.079</sup> <sub>-0.000</sub> | 0.882 (Max.)   |

Notes: 1. A, B, and C the clearance between the component and the cavity must be within 0.5 mm max. for 8 mm tape and 12 mm tape, 1.0 mm max. for 16mm tape and 24 mm tape.

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